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Is the Erosion Thesis Overblown? Alignment from Without in Germany

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It is sometimes alleged that collective bargaining coverage in Germany is understated because uncovered firms 'orient' themselves toward sectoral agreements. In fact, although orientation has grown as sectoral bargaining has declined, their joint frequency has fallen. Further, where orientation occurs at firms that leave a sectoral agreement, it provides only partial compensation. But the small deficits involved, in conjunction with some indirect evidence on joiners, suggest modest attenuation of the undoubted decline in collective bargaining.

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'In Germany since unification, we witness a process of erosion rather than breakdown … Bargaining coverage in the private sector was more or less stable – around 70 percent or more – in West Germany before unification and is currently estimated at 59 percent in western and 36 percent in eastern Germany. However, half of these non-organized firms nonetheless orient themselves toward the sector agreements and follow its basic features on pay and working time. This pushes the German coverage rate up by 10–15 percentage points.' (Visser, 2006: 494)

'Since the mid-1990s, the German system of collective bargaining has been faced by a process of creeping erosion. While bargaining coverage has shown a steady decline, a far-reaching decentralization has increasingly undermined the system of multi-employer bargaining.' (Bispinck, Dribbusch, and Schulten, 2010: 2)

Introduction

It is now accepted that the traditional bargaining system in Germany based on sectoral bargaining, and underwritten by a framework of workplace codetermination, has been subject to erosion in recent years. Not only has the institutional base been shrinking since the 1990s but there has also been an increasing tendency toward decentralization. There is disputation as to the teleological outcome of this process. To begin with, while accepting that changes in the status quo ante were more than simply a veil behind which the operation of traditional regional and industry bargaining structures continued much as before, some observers contended that the existing structures permitted transformation without disruption (Frege, 2003; Thelen and van Wijnbergen, 2003; Streeck and Thelen, 2004). Decentralization *within* sectoral bargaining was seen as proof of the system's ability to adapt to change, while the sustaining role of political support (e.g. in the form of a new Works Constitution Act, designed to promote works councils) was also emphasized. The opposing view was that a system once renowned for its robustness and potential for promoting social cohesion was now actually destabilizing (see, for example, Hassel, 1999, 2002; Bispinck, Dribbusch, and Schulten, 2010). Quite apart from the decline in sectoral bargaining, its decentralization was viewed as a Trojan Horse and as inherently destabilizing. Such observers also noted that, despite the 2001 legislation, works councils were also in decline, thereby eroding the other pillar of the dual system.

Although the latter view is largely unchanged in seeing the erosion of sectoral bargaining – again, both its decline and decentralization – as corrosive of the system as a whole, the former view has largely fallen out of favor. Thus, today one hears altogether less about path dependence, hybridization, and varieties of capitalism. The new approach has a basis in notions of segmentalism or dualism. It is well expressed in the work of Hassel (2014), who argues that German wage bargaining institutions have been transformed towards a competitively-driven model of wage regulation. Hassel distinguishes

between the emergence of an export-oriented high skill industry on the one hand and a low-cost domestic services sector on the other, and upon which the former depends to control labor costs. Although collaboration with labor – the hallmark of the old system is still practiced, this cooperation and coordination only applies to an inner core of largely manufacturing firms (see also Thelen, 2009) An increasingly dualist German economy has created an export oriented high-skill industry, depending on a domestic environment of low cost services to control labor costs, sustained by wage subsidies for the unskilled, and the lack of a minimum wage – in addition to the contribution of offshoring.[1]

At the price of some imprecision, we can equate both views[2] with erosion, as manifested in falling collective bargaining coverage and diverging wage structures over time. In the present treatment we do not seek to distinguish between these theories but rather to note their central tendencies and ask whether or not erosion might not have been exaggerated under both scenarios if in fact many uncovered establishments continue to orient themselves toward sectoral agreements. On this view, although bargaining individually with their workers and formally part of the collective bargaining free zone, such orienting firms both shadow and buttress collective bargaining. While Visser (2006) himself had no doubts, there has been little discussion of the orientation phenomenon in the literature, still less of its frequency and extent of alignment. Specifically, we examine (a) the share of workers covered by establishments claiming to orient themselves toward sectoral agreements, and (b) the wages of orienting (and non-orienting) firms relative to those determined under sectoral bargaining. Central to the second theme is the construction of a counterfactual wage. For those l*eaving* sectoral agreements this will be the wage prior to exit inflated by the growth in contractual earnings over a set interval. For those *joining* collective agreements it will be the wage before entry inflated by the increase in wages under individual bargaining. A comparison of actual with counterfactual wages will serve to determine whether or not the erosion thesis is overblown.

To anticipate our findings, we report that there has been a growth in orientation at the very time that sectoral bargaining proper has declined – and seemingly continues to decline. We also report consistently higher average wages in cross section among the firmament of orienting firms vis-à-vis their nonorienting counterparts in the collective bargaining free zone, even if the former are distinctly lower than those determined under collective bargaining. But the evidence offers at best only moderate support for Visser's argument that since orientation simply mimics collective bargaining the two can to all intents and purposes be regarded as one. First of all, even if close alignment were the order of the day, the joint frequency of sectoral bargaining and orientation is declining. Second of all, alignment is in fact only partial. That is, the actual wages of those establishments that exit collective bargaining but

claim to shadow collective agreements are statistically lower than the counterfactual wage – though significantly less so than for nonorienters. In the case of joiners, observed and counterfactual wages for orienting establishments are virtually identical, thereby offering *indirect* support for the orientation phenomenon. On balance, then, our findings discount Visser's argument while at the same time suggesting that the erosion process has in practice been attenuated by orientation.

Data

Our data are extracted from the IAB Establishment Panel, or *Betriebspanel*. This is a nationally representative panel of establishments based on a stratified random sample of the population of all establishments with at least one employee covered by social insurance (see Fischer et al., 2009). Currently, the stratification currently has a basis in 19 industries and 10 employee size classes. As of 2013, the Panel encompassed more than 16,000 establishments.

Respondents to the Panel questionnaire are asked questions on a wide set of issues, including the type of collective bargaining coverage, the number of employees in employment, and the wage bill. The questionnaire distinguishes between two types of collective bargaining: area-wide industry agreements, the dominant form of collective agreement, negotiated at sectoral level by the regional associations of employers and trade unions (the so-called *Flächentarifverträge* or *Branchentarifverträge*), and separate agreements based on negotiations between the firm and a union(s) (*Firmentarifverträge*). In addition, plants are asked to state if they do not practice collective bargaining, and since 1999 such establishments that *individually* bargain with their employees have been asked whether or not they nonetheless orient themselves to a sectoral agreement.[3] In neither case, however, is the identity of the sectoral agreement in question disclosed so that the researcher cannot link firms to a specific tariff.

Furthermore, firm respondents are not asked to provide any information on the precise nature of the voluntarily applied contract terms. But we can exploit wage data to supplement the elusive nature of the orientation question in the survey. In particular, establishments are asked as of June 30 in each year to state the total sum of gross wages and salaries for that month (excluding the employer share of social security payments as well as holiday pay). Separate questions on the total number of workers employed at this qualifying date (net of trainees, temporary agency workers, and certain other residual categories) were used in conjunction with the share of part-time workers to compute the average bill per full-time equivalent employee. This is our raw measure of the establishment average

wage. Real wages (specifically, year 2000 wages) are used throughout, the inverse of the consumer price index being used as a deflator.

Our selected observation window is 2000-2013, the beginning period being determined in part by changes in industrial classification that we wish to avoid having to deal with. But the 2009 changes in industrial classification were accommodated. In particular, since sectors in the 2000-2008 waves of the Panel are grouped using the NACE Revision 1.1, while in 2009-2013 the classification is based on NACE Revision 2, we opted to use the latter for all establishments coded under both systems. However for establishments in waves 2000-2008 but not 2009-2013, we used the ad hoc procedure of 'the most likely transition,' having a basis in the actual transitions (i.e. changes in sector classification from one system to another) for all those establishments that are coded under both systems. Sample industries and their 2-digit components, before and after the SIC changes of 2009 are provided in the Appendix.

Finally, the longitudinal nature of the Establishment Panel allows us to track transitions into and out of collective agreements.[4] These shifts in collective bargaining status provide the basis of our discussion of the wage implications of orientation (and nonorientation) to include the construction of counterfactual wages which is the last analytical step in the exercise.

Findings

1. *The Extent of Orientation*

We first examine the frequency of orientation, beginning with the most aggregate level before turning to region and specific sector. In each case, we examine collective bargaining coverage/absence of coverage by the proportion of workers affected.[5] Table 1 confirms the erosion of sectoral bargaining widely noted in the literature. Moreover, the seeming pause in decline for 2009 noted by some other observers does not appear to have persisted beyond that year (see also Ellguth and Kohaut, 2011). We observe a 17.8 percent fall in the share of employees covered by sectoral bargaining over the fourteen-year sample period, as well as the suggestion of a modest uptick in firm-level bargaining at end of period after declining in 2010-2011. Observe that the share of employees in orienting plants has increased by 35.2 percent – from 16.2 percent to 21.9 percent of all employees. However, there has been greater growth (25.6 percent) in the share of employees in non-orienting plants over the period. In short, even if we were uncritically to add the share of employees in covered and uncovered but orienting plants, the total would register a decline from 76.2 percent in 2000 to 71.2 percent in 2013. Sectoral bargaining is *and continues to be* in decline while orientation is increasing. Finally, the proportion of workers in

establishments practicing individual bargaining is also increasing, but as of end of period such individuals are outnumbered by their counterparts employed in orienting establishments.[6]

(Table 1 near here)

Table 2 disaggregates by broad region. Collective bargaining coverage rates by number of employees show the familiar pattern: sectoral bargaining is markedly lower in eastern than in western Germany (and the extent of the bargaining free sector correspondingly higher), while firm-level bargaining is higher but still of somewhat low frequency. Sectoral bargaining has declined over the sample period in both western and eastern Germany (by 17.0 percent and 25.7 percent, respectively) and the extent of the bargaining free sector is higher in eastern than western Germany (52.4 percent versus 39.7 percent of all employees at end period). Adding the numbers of employees covered by orientation to those covered by sectoral bargaining, however, again produces smaller declines in direct and what Visser would term 'indirect' sectoral bargaining of 5.5 percent in western Germany and 13.0 percent in eastern Germany.

(Table 2 near here)

We next consider coverage rates in specific sectors of the economy. The coverage data in Table 3 generally point to a decline in sectoral bargaining (other than in Business Services). The decline is more pronounced in some sectors (primarily Trade, Transport, and Finance and Manufacturing) than others (most notably Construction). By the same token, orientation seems to have grown with the highest increase occurring where sectoral bargaining has declined most. For example in Trade, Transport, and Finance where sectoral bargaining declined by 31.9 percent, orientation grew by 102.9 percent such that the two taken together decreased by 7.9 percent. In Manufacturing the respective changes were -20.2 percent, +19.6 percent, and -11.2 percent. And in Other Services where sectoral bargaining fell by 20.8 percent, orientation grew by 28.0 percent, yielding a decrease in joint coverage of 7.9 percent.

(Table 3 near here)

In sum, there has been some growth in orientation through time among firms practicing individual bargaining. But it remains the case that this growth has typically only partially compensated for the decline in sectoral bargaining proper, whether measured in terms of numbers of employees or establishments affected, although there is some heterogeneity by sector.[7]

2. *Wages under Orientation*

Recalling our earlier reservations as to the limited informational content of the orientation question in the IAB Establishment Panel, is it true that wages in firms claiming to shadow the relevant sectoral

agreements are in fact higher than in the rest of the collective bargaining free sector? To help answer this question, we will examine wage developments by type of collective agreement and by absence of collective agreement. (As before, firm-level bargaining is addressed only in passing.) We first consider the course of average wages (viz. the monthly real wage bill divided by the number of full-time equivalent workers; see the previous section) in each year of the sample period, both for the full cross section and for the subsample of permanent stayers. We then turn to examine changes in average wages over three consecutive years for those firms abandoning sectoral agreements and for those firms joining sectoral agreements, including the construction of their counterfactual wages.

(Tables 4 and 5 near here)

Mean unweighted real wages for our fourteen annual cross sections of data are provided in Table 4. It can be seen that real wages are unequivocally higher under collective bargaining than in its absence and that, with the exception of two years (i.e. 2000 and 2001), firm-level contracts are associated with the highest wages of all. In 2000 the average wage in uncovered non-orienting plants was 73.3 percent of that paid under the generality of sectoral agreements, and by 2013 this ratio had fallen to 66.4 percent. Corresponding values for orienting establishments were 80.7 percent and 75.1 percent. At this level of aggregation, the seemingly most important development was the change in the relation between firm and sectoral bargaining: average wages under firm-level bargaining rose from 99.4 percent to 107.4 percent of those paid under sectoral agreements over the sample period.

Turning to the sample of permanent stayers in Table 5, much the same patterns are evident in the data. Thus, average real wages tend to be higher under firm-level agreements, especially in the second half of the period. In turn, wages in orienting firms uniformly exceed those in non-orienting firms: in 2000 the ratio of average wages in orienting (non-orienting) firms to those in plants observing sectoral agreements was 78.0 percent (72.6 percent). By 2013 the corresponding ratios were 72.7 percent and 62.6 percent, respectively.

Another way of looking at the evidence is to examine changes in wages attendant upon firms joining or leaving sectoral agreements according to their initial/subsequent status as either uncovered orienting or non-orienting firms – a type of unconditional difference-in-differences approach. Given the above evidence, orientation does not mean that wages are set at prevailing collective agreement levels. Subject to the caveat that we cannot link firms to specific sectoral agreements, our ultimate goal is to determine what switchers out of (into) collective agreements would have gained (lost) in wage increases had they not changed status.

Let us firstly briefly elaborate on our empirical strategy. The first step consists of selecting establishments that are observed for three consecutive years over our sample period, 2000-2013. Next, we divide this subsample into those establishments that are covered by a sectoral agreement over the entire sequence (call them 'sectoral agreement stayers'); those that leave after the first year but who orient toward a sectoral agreement in the following two years ('orienting leavers'), and those that seemingly abandon any contact with collective bargaining ('non-orienting leavers'). We can also represent these three groups by the specific sequences (scb-scb-scb), (scb-orient-orient), and (scb-nonorient-nonorient), respectively. Similarly, for sectoral agreement joiners, we have the sequences (orient-scb-scb) and (nonorient-scb-scb), where the former denotes the transition from orientation to sectoral agreement and the latter the transition from non-orientation to sectoral agreement coverage.[8] We label these two groups 'orienting joiners' and 'non-orienting joiners' and select two additional (control) groups of 'orienting stayers' and 'non-orienting stayers.' The latter are defined, respectively, by the sequences orient-orient-orient and nonorient-nonorient-nonorient.

The next step is to compute and compare the wage growth profiles of the all groups over the full three-year sequence, *t-2*, *t-1*, and *t*. In particular, we are interested in comparing the wage developments/profiles of orienting and non-orienting leavers vis-à-vis sectoral agreement stayers on the one hand, and orienting and non-orienting joiners vis-à-vis orienting and non-orienting stayers on the other. Observe that we decided to look at three consecutive years of data, rather than just two, to reflect the possibility that the effect of leaving/joining may not be immediate. Indeed, we shall also present results from deploying four consecutive years of data, comprising two years before leaving/joining and two years with the new collective bargaining status. In this case, we have, in years *t-3*, *t-2*, *t-1*, and *t*, the sequences (scb-scb-scb-scb), (scb-scb-orient-orient), (scb-scb-nonorient-nonorient), (nonorient-nonorient-scb-scb), and (orient-orient-scb-scb). By observing two consecutive years before switching, we hope to be able to detect any distinctive pre-exit collective agreement behavior, analogous to the Ashenfelter dip. All the empirical exercises will be carried out for the entire sample interval, 2000-2013, as well as for two shorter, 7-year intervals (i.e. 2000-2006, 2007-2013). We will also examine the robustness of our results using separate sub-samples of establishments with at least five employees, and from Manufacturing and Services as well.

We begin by commenting on absolute wage levels observed in year *t-2, t-1* and *t* for all selected groups vis-à-vis the wage data earlier observed in cross-section. The goal here is to find the extent to which the initial wage level of sectoral agreement stayers differs from the wage observed for the entire

group of establishments covered by a sectoral agreement; and similarly for sectoral agreement leavers and joiners.

(Table 6 near here)

Table 6 provides evidence on beginning-period wages for the different groups of stayers and movers: panel (a) for the three-year sequence, and panel (b) for the four-year sequence. Here the relevant comparison is with Table 4. Observe firstly that wages among sectoral agreement stayers in the first column and row of Table 6 (panel a) are slightly above the average wage level that can be calculated from Table 4 (i.e. €2,202 in the first column as compared with an average of €2,118 across all cross-sections shown in the first column of Table 4). Next, sectoral agreement leavers seemingly have lower wages in the base year than the average sectoral agreement member. For their part, joiners that previously did not practice orientation had lower wages than their counterparts that did so. Interestingly, the wage structure given in the second panel – the four-year case – closely accords with the first panel. Hierarchies are preserved. Orienting firms have higher base wages than non-orienting firms irrespective of whether they are stayers or movers.

(Figure 1 near here)

The wage pattern over time and across the selected 'control' and 'treatment' groups are presented in Figures 1 and 2. Figure 1 depicts wage growth for leavers and joiners versus sectoral and non-sectoral agreement stayers in the three-period sequence and for the entire interval, 2000-2013. Sectoral agreement stayers apparently earn higher wage increases over the period than do sectoral agreement leavers. This is not an unexpected finding given our earlier results to the effect that it is better to be covered than not covered, subject to the caveat that we are observing an average contract, not the specific contract being followed (or abandoned). And despite low real wage growth over our sample period, it is clear that those leavers that practice orientation do stay closer to the growth pattern of stayers than those who leave and do not. For its part, joining a collective agreement seems to pay off, with newly-covered establishments enjoying a higher wage increase than both sectoral and non-sectoral agreement stayers. The case of non-orienting joiners, who record the highest wages growth, is as anticipated given that their starting wage levels are the lowest of all.

(Figure 2 near here)

Figure 2 presents the results for the four-year sequence, where it will be recalled that we are we are controlling for an extended two-year (i.e. *t-3* and *t-2*) pre-transition period. The gains from being covered throughout are seemingly transparent. Stayers record a cumulative wage growth of approximately 1 percent by the fourth year, which is conspicuously higher than for leavers, especially for

non-orienting leavers who record a 6 percent loss. In the case of joiners, the figure suggests that their lower initial wage increases are followed by a comparatively rapid advance in wages after joining.

We turn in conclusion to the critical issue of whether workers in establishments leaving a sectoral agreement would have enjoyed higher wages had they not switched. Ultimately, we will be interested in determining whether there is evidence supporting the thesis that the decline in coverage has generated an increasing wage gap with no obvious offsetting role played by *orientation*.

In the first place, and taking the case of leavers, note that the quasi-experimental exercise to be carried out amounts to constructing a meaningful counterfactual wage w_{jt}^* for each establishment *j* in the selected 'treatment' group and then to compare the corresponding mean, w_t^*, with the observed wage mean in the same group (or w_t). In order to obtain w_{jt}^* we use the wage growth rate, g_c, of the corresponding control group of sectoral agreement stayers, so that we have $w_{jt}^* = w_{jt-2}(1 + g_c)$. In this framework, if non-orienting leavers obtain a counterfactual wage that is statistically higher than the observed wage, while orienting leavers do not, we can infer that the erosion thesis is not overblown, since this evidence would suggest that orientation after exiting from a sectoral agreement plays a (fully) offsetting role. A similar exercise will be carried out for the group of joiners. In this latter case, however, we will need to form two distinct counterfactual wage growth rates for orienting and non-orienting stayers, according to the selected treatment group (namely, orienting and non-orienting joiners, respectively).

This exercise is of course grounded in the premise that although the set of leavers (either orienting or non-orienting) may not be entirely similar to the control group of sectoral agreement stayers – as shown in Table 6 above – there is no reason to believe that had these leavers not switched they would fail to obtain approximately the same wage increase as any sectoral agreement stayer. In other words, low-paying establishments or not, had leavers not switched they would tend to obtain the collectively-agreed wage growth set for all members.

(Table 7 near here)

Panels (a) and (b) of Table 7 show the results of this exercise for establishments that are observed over three and four consecutive years, respectively. To illustrate our computations for the former, we note that the value of €1,781 reported in the second column and second row of panel (a) is the counterfactual mean wage w_t^* over all orienting leavers, which is given by (in Euros) $w_t^* = w_{t-2}\ (1 + g_c)$ (or $1{,}781 = 1{,}764 * 2{,}224/2{,}202$), where $w_{t-2} = 1{,}764$ is the pre-exit mean wage for orienting

leavers and $g_c = w_t/w_{t-2} - 1 = 2{,}224/2{,}202 - 1$ is the control group average growth rate, both obtained by using the corresponding average values reported in panel (a) of Table 6.

Clearly, the difference between the observed and the counterfactual wage is sufficiently large for a mean comparison test to confirm (at the 0.01 level) that the actual wage is statistically lower than the counterfactual wage for both orienting and non-orienting leavers. Had orientation a full impact on those establishments that chose to shadow an existing sectoral agreement, only non-orienting leavers would have a counterfactual wage higher than the observed wage. By the same token, the difference between observed and counterfactual wages is much larger for non-orienting leavers than for their orienting counterparts (at -€129 and -€41, respectively). The fourth column in panel (a) shows that the difference across the two groups of leavers is approximately €90 in favor of orienting leavers, a sizeable and highly statistically significant gap. In other words, although exiting a sectoral agreement reduces establishment wages for all leavers, there is nevertheless a material orientation effect that reduces the negative impact of leaving for employees of firms that choose to orient.

Panel (b) of Table 7 in turn presents the results for establishments observed over four – rather than three – consecutive years. The evidence points very much in the same direction as before, with the null hypothesis in the third column being rejected at the 0.05 level for orienting and non-orienting leavers alike. In comparison with panel (a), the difference between observed and counterfactual wages is about the same magnitude for orienting leavers. For non-orienters, however, the difference is larger. As a result, the comparison *across* the two groups in the fourth column yields a larger (absolute) difference of approximately €130 (rather than €90, in panel (a)), a gap that is again statistically significant at the 0.01 level.

(Table 8a near here)

Do these findings still hold if we restrict the sample to larger establishments? We present a parallel analysis for establishments with at least 5 employees in Table 8a. We note parenthetically that a larger establishment-size threshold would cause the number of collective agreement transitions to drop materially.[9] One main conclusion of this exercise is that despite an across-the-board increase in mean wages – attendant upon very small establishment being dropped from the sample – there is every indication albeit now at a reduced significance level that both groups of leavers again have their wages reduced in comparison with the 'alternative' wage each would have recorded had they not left a sectoral agreement. In turn, from the fourth column of the table, it is clear that that the reduction is also larger for non-orienting than for orienting leavers – this time by a margin of approximately €80.

(Table 8b near here)

Table 8b repeats the analysis for the two separate sectors of Manufacturing and Services. Given the evidence in Table 8a, we ran the one-tailed mean comparison test only for the full sample of establishments (i.e. those with at least one employee). Three conclusions are in order. First, for the group of sectoral agreement stayers, observed wages are approximately the same in the two selected sectors (and similarly for orienting and non-orienting leavers). Second, the null hypothesis, in the third column of the table, is again rejected for both groups of leavers in each sector (at the 0.05 level). Finally, the gap across the two groups, shown in the fourth column, is again larger (in absolute value) for non-orienting than for orienting leavers; approximately €120 in Manufacturing and €70 for Services.

(Table 8c near here)

We next consider in Table 8c results for the two sub-periods, 2000-2006 and 2007-2013, again for establishments with at least one employee.[10] Sample size inevitably falls, but the goal here is to offer some indicative evidence on whether there is any analytical gain from looking at a shorter interval, in which establishments are presumably more likely to maintain their intrinsic characteristics constant. This approach also allows us to control in a rough and ready way for different macroeconomic environments that might impact sectoral agreement transitions. The main finding seems to hold again, especially for 2007-2013. For 2000-2006, the null hypothesis in the third column is only rejected for the group of non-orienting leavers. In any event, we do find for both sub-periods that non-orienting leavers are at a relative wage disadvantage as the corresponding wage loss (in comparison with the 'alternative' wage) is always larger than that observed for those who orientate, at roughly €90 and €130 as can be seen from the fourth and eighth columns of the table, respectively.

We turn finally to an indirect procedure. Returning to Table 7, the last four rows provide information on those joining sectoral agreements according to whether they were previously orienters or nonorienters. Here, if sectoral agreement coverage is indeed beneficial to worker wages, then switching from non-coverage to coverage should imply a higher wage. At the same time, we would anticipate the difference between observed and counterfactual wages to be larger for non-orienting joiners than for orienting joiners. In other words, since the respective control groups are non-orienting and orienting stayers, respectively, if orientation has an impact on wages, we would expect joining after orientation to yield a smaller wage effect than joining after non-orientation. Put differently, our presumption is that the null hypothesis is more likely to be rejected in the case non-orienting joiners than in the case of orienting joiners.

As shown in the seventh row of the table, third column, there is every indication that joining is particularly favorable for non-orienting joiners as the counterfactual wage is statistically smaller than

the observed wage at the 0.05 level. For orienting joiners, in the fifth row, we do not reject the null hypothesis – in other words, had orienting joiners not joined a sectoral agreement their (counterfactual) wage would be approximately the same. The result in the fourth column confirms that the difference between observed and counterfactual wages is larger for non-orienting than for orienting joiners (at approximately €70). In comparison with the results obtained for leavers, it follows therefore that the presence of an orientation effect is perhaps more transparent among the subset of joiners.

The results for orienting joiners observed for four consecutive years, in panel (b), seemingly confirms the presence of a tangible orientation effect as observed and counterfactual wages are not statistically different for this group. For non-orienting joiners we also find that the null hypothesis is rejected, which implies that the difference ($w_t - w_t^*$) across the two groups is not statistically different from zero (see the fourth column of the table). That said, we view the latter result as an artifact of sample size; comparing panels (a) and (b) the sample of joiners is reduced by roughly three-quarters (namely from 1,908 to 537).

The presence of a sizeable orientation effect in the subset of orienting joiners is confirmed in the sensitivity exercises – see the results in the fifth rows, and third columns of Tables 7 and 8. As can be seen, in no case is the null hypothesis for orienting joiners rejected, indicating that actual and counterfactual wages are very much aligned for this group of joiners. For non-orienting joiners (seventh rows), it is perhaps surprising that the evidence of wage gain is not stronger: only in three out of five cases is the observed wage statistically higher than the counterfactual wage and in no case at 0.01 level. Further, the mean comparison test across the two groups of joiners, in the fourth column, rejects the null in just two out of five cases. Summarizing the findings from Table 7 (and 8a through 8c), then, it seems that the erosion thesis might have been exaggerated. Thus, for the subset of leavers although alignment with sectoral agreements was certainly incomplete, workers in orienting plants nevertheless earned a wage much closer to the alternative (or counterfactual) wage than their did counterparts in nonorienting establishments. The indirect evidence was in some sense stronger in that observed wages in establishments that oriented themselves toward sectoral agreements were seemingly more closely aligned prior to joining, recording/requiring smaller wage advances than others in this group of joiners that had not previously oriented.

Conclusion

The ambiguity concerning orientation, the shadowing of sectoral collective agreements by uncovered firms that formally practice individual bargaining alone, is two-fold. First, and least opaque, is

the question of its frequency. That is, the IAB Establishment Panel directly inquires of firm respondents in the collective bargaining free zone whether or not they informally follow the terms of an industry-wide agreement. Despite this data availability, however, scant attention has been accorded it in the wage literature and unaccountably even less in the much larger body of empirical work devoted to the erosion thesis. In the present paper, we have sought to remedy this information deficit by providing several time series on the extent of orientation. Second, but much more difficult to discern, is the extent to which firms professing to informally follow sectoral agreements do so in practice. This is an issue akin pattern bargaining, to resurrect reference to an Anglo-Saxon literature. Full investigation of this issue would involve examination of detailed bargaining constellations (see Addison and Burton, 1977). Our approach here can only be indirect as we lack information on the actual sectoral agreements in play. Instead, we compare *average wages* and *changes in wages* for three groups: sectoral bargainers on the one hand and individual bargainers, comprising orienters and nonorienters, on the other.

What do we find? Apart from confirming that industry-wide collective bargaining has been in retreat in Germany, this update also suggests that it continues to decline. That said, there is every indication that the informal following of sectoral agreements is not merely commonplace but also on the increase. There is even the suggestion that it may be increasing most where sectoral bargaining is most in decline, even if at this descriptive level (i.e. simply lumping together formal and informal sectoral bargaining) it is seldom sufficient to reverse the decline. Turning to the issue of wage alignment, there is evidence that those paid according to sectoral agreements earn the most and that some way behind them come orienting firms that pay somewhat more than their non-orienting counterparts. For their part, and at purely descriptive level, sectoral agreement stayers earn higher wage increases over the period than do sectoral agreement leavers, while orienting leavers stay closer to the growth pattern of stayers than non-orienting leavers. Not surprisingly, for non-orienting joiners we found that newly-covered establishments reveal a higher wage growth than both sectoral agreement and non-sectoral agreement stayers, while orienting joiners only perform better than non-orienting stayers.

But is there any strong statistical evidence to suggest that workers in those establishments quitting sectoral bargaining would have enjoyed higher wages had they not switched? And is there any distinct pattern distinguishing orienting from non-orienting leavers that might permit one to conclude that sectoral agreements are not after all heading toward oblivion? We sought to answer such questions by constructing counterfactual wages for all relevant treatment groups. The bare conclusion for both orienting and non-orienting *leavers* is that counterfactual wages are visibly higher than observed wages. Despite this outcome, however, the deficit between actual and counterfactual wages is distinctly lower

for orienting than nonorienting leavers, suggesting that orientation does achieve closer correspondence with collectively bargained wages. The results for *joiners* offer indirect support for this version of the orientation thesis. That is, compared with their counterparts that remain uncovered there is little wage advantage from now formally following a sectoral agreement among the ranks of orienting joiners, while the converse is the case for nonorienting joiners who experience somewhat higher wage gains than those they leave behind.

Nevertheless, the bottom line remains the finding that in neither frequency nor remuneration is the compensation offered by orientation other than partial. Orientation as practiced offers organized bargaining at best a temporary respite from the forces of erosion. It is therefore appropriate that the research focus now shift back toward a reconsideration of the causes and consequences of the decline in sectoral bargaining. An important contemporary issue covering both aspects is European crisis management involving fundamental structural reforms aimed at improving national competitiveness. A recent report prepared by the European Commission's Directorate General for Economic and Financial Affairs (DG ECFIN) offers a stark vision of the future of collective bargaining (European Commission, 2012: 102). The report calls for a general decentralization of wage setting and collective bargaining, the introduction of greater flexibility through the opportunity to derogate at workplace level from sectoral agreements (coupled with enabling labor code/legal changes), and limitations on the scope for the extension of collective agreements to nonsignatory employers. (It also recommends a reduction in collective bargaining coverage, as well as an overall reduction on the wage-setting power of unions.) Observe that each of these changes had earlier been introduced in Germany. Arguably, the 'new' German model is being used as a blueprint for reforms to labor market policy to be followed by European nations in straightened economic circumstances as conditionality for obtaining loans and the purchase of government bonds under terms set by the European Central Bank, the European Commission, and the International Monetary Fund (or *Troika*). The payoff is said to be improved competitiveness through a reduction in wages and unit labor costs, and here German economic performance will strike many observers as particularly compelling. Indeed, recent study by Dustmann et al. (2014) attributes the dramatic improvements in that nation's employment and competitiveness during and subsequent to the Great Recession *exclusively* to its industrial relations changes. However, apart from the simple correlation of rising wage inequality and falling union coverage (and density), the authors do not examine the consequences of changes in bargaining structure over their sample period in any detail.

The forces making for decentralization in the past – competitive wage setting arrangements – seem set to continue, partly as a result of conscious policy. From this perspective, the radical decentralization of collective bargaining in the crisis nations is unlikely to be restricted to those countries. Schulten and Müller (2013) speak of an increasing divergence between the crisis countries and the core countries (including Germany) but their argument is predicated on the controversial notion of controlled decentralization having allowed German collective bargaining institutions to weather the storm. This is a further example of complications raised by the lack of consensus on the erosion thesis, and helps explain the relevance of the present paper. Our contribution sought formally to examine one component of the decentralization/erosion debate by determining whether sectoral bargaining was (increasingly) undergirded by a supportive system of 'implicit sectoral bargaining,' such that the observed decline in organized bargaining might be *seriously overstated*. We found that not to be the case and the evidence consistent at most with a modest attenuation of the erosion in collective bargaining. With this potentially important qualification out of the way, as it were, the way is now clear for a new research focus on changes in wages and the wage distribution following shifts in collective bargaining status as well as the effects of opening clauses (and local pacts) on wages, firm performance, and on the interplay between works councils and trade unions.

ENDNOTES

1. For a discussion of declining collective bargaining frameworks and the pressures on the terms and conditions of employment through privatization, offshoring, outsourcing, European integration, and neoliberal reforms, see Doellgast, 2012; Doellgast and Greer, 2007; Höpner and Schäfer, 2008; Holst, Nachtwey, and Dörre, 2010; Lillie, 2010; Baccaro and Howell, 2011; Emmenegger et al., 2012.

2. There are alternative representations of the status quo. These are primarily the *exhaustion thesis* (Streeck, 2010) on the one hand, indicating a singular trend towards liberalization, and notions of *revitalization* on the other (Haipeter, 2011a, 2011b, 2013).

3. This part of the questionnaire inquiring about collective bargaining status also asks firms following a multi-employer or single-employer agreement whether or not they paid higher wages than laid down in the respective tariff agreement. We do not use this information, but for an analysis of this *wage cushion*, see Jung and Schnabel (2009).

4. We will also look at those establishments that are observed in every single wave of the Panel – so-called 'permanent stayers' – alongside unrestricted cross sections of the data.

5. Coverage data by establishment share corresponding to this table (see below) and all other descriptive tables are available upon request.

6. Although not shown in the table, coverage data based on the *proportion of establishments* rather than employment share confirm the erosion of sectoral bargaining. Specifically, we observe a 32.2 percent fall in the number of establishments covered by sectoral bargaining over the fourteen-year sample period. In turn, the share of orienting plants has increased by 36.0 percent – from 22.2 percent to 30.2 percent of all plants – whereas that of non-orienting plants has grown at 17.6 percent over the period. Adding the share of orienting plants to those formally practicing sectoral bargaining, indicates a decline from 63.5 percent in 2000 to 58.2 percent in 2013. As expected, greater shares of employees

than establishments are covered by sectoral bargaining given the higher incidence of collective bargaining in larger firms – and conversely for the bargaining free zone.

7. The decline in sectoral bargaining and the corresponding increase in the collective bargaining free zone is observed across all (establishment) size groups. For example, in establishments with less than 50 (with at least 250) employees the share of workers covered by a sectoral agreement declined by 14.5 (8.2) percentage points. The corresponding increase in the share of workers in non-orienting establishments is 6.6 and 2.4 percentage points, respectively. Accordingly, the fall in sectoral agreement coverage in the very broadest sense (lumping together the share of workers in covered and orienting establishments) is about the same magnitude in two selected establishment-size categories, at 6 to 8 percentage points, respectively. Again, full results are available upon request.

8. The sequences (scb-fcb-fcb) and (fcb-scb-scb), where 'fcb' denotes the presence of a firm agreement, have also been ignored in the literature and are strictly outside of the remit of the present paper. As a practical matter, the number of transitions is very much lower here.

9. Note also that we refrain from considering the four-year case here because the comparisons would be distorted by sharp falls in sample sizes.

10. Results for establishment with at least five employees are available upon request; and they are very similar.

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TABLE 1

COLLECTIVE BARGAINING COVERAGE BY EMPLOYMENT (ALL GERMANY), 2000-2013, WEIGHTED DATA

Year	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented Toward One	Neither Covered by a Collective Agreement nor Oriented
2000	60.0	7.8	16.2	16.0
2001	60.5	8.4	16.4	14.7
2002	59.8	7.9	16.7	15.6
2003	59.1	8.2	17.2	15.4
2004	57.7	7.9	16.8	17.6
2005	56.2	8.1	17.1	18.6
2006	54.3	9.0	18.5	18.2
2007	53.4	8.2	20.0	18.4
2008	52.9	8.7	19.7	18.7
2009	52.7	9.5	19.4	18.4
2010	52.6	8.4	19.4	19.7
2011	50.9	8.1	21.2	19.8
2012	50.4	8.3	21.2	20.0
2013	49.3	8.7	21.9	20.1

Note: The raw sample includes all establishments with at least one employee.

TABLE 2

COLLECTIVE BARGAINING COVERAGE BY EMPLOYMENT FOR WESTERN AND EASTERN GERMANY, 2000-2013, WEIGHTED DATA

Year	Western Germany				Eastern Germany			
	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented	Not Covered by a Collective Agreement and not Oriented	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented	Neither Covered by a Collective Agreement nor Oriented
2000	63.1	7.2	14.8	14.9	47.5	10.0	21.9	20.5
2001	64.0	7.5	14.9	13.6	45.7	12.3	22.9	19.1
2002	63.4	7.0	15.4	14.3	44.4	11.9	22.6	21.2
2003	62.6	7.4	16.0	14.0	43.9	12.0	22.3	21.8
2004	61.3	7.0	15.8	15.9	42.1	11.7	21.2	25.1
2005	59.4	7.3	16.1	17.2	42.1	11.6	21.7	24.7
2006	57.4	8.0	17.8	16.8	40.8	13.1	21.8	24.3
2007	56.3	7.2	19.4	17.2	40.6	12.8	22.8	23.8
2008	55.7	7.9	19.1	17.3	40.1	12.4	22.6	24.8
2009	55.8	8.8	18.4	17.0	38.5	12.9	23.8	24.8
2010	56.0	7.4	18.4	18.1	37.1	12.7	23.6	26.5
2011	53.8	7.3	20.3	18.5	37.5	11.7	25.5	25.3
2012	53.4	7.5	20.5	18.6	36.7	12.4	24.7	26.3
2013	52.4	7.9	21.2	18.5	35.3	12.4	25.1	27.3

Note: See Table 1.

TABLE 3

COLLECTIVE BARGAINING COVERAGE BY EMPLOYMENT FOR DIFFERENT SECTORS, 2000-2013, WEIGHTED DATA

	Year	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented	Neither Covered by a Collective Agreement nor Oriented
Manufacturing	2000	63.4	6.7	18.4	11.4
	2001	62.8	9.4	17.2	10.5
	2002	63.7	8.4	17.7	10.3
	2003	63.2	9.1	17.0	10.7
	2004	61.5	7.4	18.0	13.2
	2005	57.9	9.3	18.9	14.0
	2006	55.2	11.1	20.9	12.8
	2007	54.7	9.9	21.3	14.0
	2008	53.5	10.1	21.8	14.6
	2009	53.5	10.5	20.7	15.4
	2010	52.0	11.4	20.8	15.8
	2011	50.6	10.2	22.4	16.8
	2012	50.1	10.2	23.1	16.6
	2013	50.6	12.1	22.0	15.2
Construction	2000	70.7	4.1	17.3	7.9
	2001	69.0	4.2	17.3	9.5
	2002	68.2	3.8	20.0	8.0
	2003	67.6	4.0	20.1	8.3
	2004	67.7	3.6	18.8	9.8
	2005	67.5	3.4	18.5	10.7
	2006	67.4	4.2	19.0	9.4
	2007	67.9	3.6	17.6	10.9
	2008	64.9	5.0	16.8	13.2
	2009	69.7	3.5	15.2	11.7
	2010	67.8	2.7	17.1	12.4
	2011	63.4	2.8	22.0	11.7
	2012	66.0	2.9	19.6	11.5
	2013	65.1	3.1	20.6	11.2
Trade/Transport/Finance	2000	62.6	7.9	13.6	15.8
	2001	64.1	8.9	14.6	12.4
	2002	61.6	7.6	16.3	14.6
	2003	60.2	10.0	15.9	13.9
	2004	58.2	9.3	16.9	15.7

	2005	55.3	7.9	18.0	18.8
	2006	51.6	7.8	21.0	19.6
	2007	49.7	6.9	23.5	19.9
	2008	47.8	7.2	23.6	21.4
	2009	48.3	8.6	23.1	20.0
	2010	47.1	6.4	23.6	22.9
	2011	44.7	6.3	26.8	22.2
	2012	44.4	7.8	25.4	22.5
	2013	42.6	6.5	27.6	23.3
Business Services	2000	35.7	8.6	20.9	34.8
	2001	33.8	8.2	22.6	35.4
	2002	33.3	5.3	21.9	39.5
	2003	32.7	5.8	24.4	37.0
	2004	39.4	7.8	17.8	35.0
	2005	40.9	6.8	17.8	34.4
	2006	41.0	8.9	17.7	32.4
	2007	44.7	6.7	19.0	29.6
	2008	44.8	7.3	17.0	31.0
	2009	44.0	8.3	18.4	29.3
	2010	46.3	6.5	16.9	30.3
	2011	46.5	4.8	18.8	30.0
	2012	46.4	5.1	18.4	30.1
	2013	44.0	4.4	19.2	32.5
Other Services	2000	53.8	7.4	19.3	19.6
	2001	56.5	6.0	19.7	17.9
	2002	55.3	7.9	18.8	18.0
	2003	53.3	7.0	20.7	19.1
	2004	51.4	6.7	19.0	22.9
	2005	50.4	8.1	18.8	22.7
	2006	50.9	8.3	18.9	21.9
	2007	47.0	8.9	21.5	22.6
	2008	49.6	8.3	21.8	20.3
	2009	46.3	10.7	22.0	21.0
	2010	47.3	8.5	22.2	22.1
	2011	45.7	9.3	22.9	22.1
	2012	44.5	8.9	24.1	22.5
	2013	42.6	10.7	24.7	22.1

TABLE 4

REAL WAGE BILL PER EMPLOYEE, 2000-2013, UNWEIGHTED DATA

Year	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented	Neither Covered by a Collective Agreement nor Oriented
2000	2,125	2,113	1,716	1,558
2001	2,139	2,114	1,727	1,640
2002	2,188	2,219	1,802	1,668
2003	2,164	2,186	1,759	1,628
2004	2,174	2,236	1,766	1,570
2005	2,172	2,246	1,720	1,518
2006	2,154	2,305	1,727	1,535
2007	2,100	2,198	1,648	1,443
2008	2,067	2,141	1,620	1,429
2009	2,053	2,152	1,613	1,419
2010	2,077	2,212	1,606	1,403
2011	2,074	2,222	1,585	1,392
2012	2,083	2,242	1,603	1,409
2013	2,086	2,240	1,566	1,386

Notes: The reported figures are per full-time equivalent employee, where a part-time worker is taken to be one-half a full-time worker. Real wages (in Euros) refer to year 2000, and were obtained using the inverse of the CPI as a deflator.

TABLE 5

REAL WAGE BILL PER EMPLOYEE FOR PERMANENT STAYERS, 2000-2013, UNWEIGHTED DATA

Year	Sectoral Agreement	Firm Agreement	Not Covered by a Collective Agreement but Oriented	Neither Covered by a Collective Agreement nor Oriented
2000	2,071	2,059	1,615	1,503
2001	2,044	2,008	1,620	1,492
2002	2,094	2,067	1,671	1,465
2003	2,127	2,129	1,674	1,486
2004	2,116	2,091	1,692	1,482
2005	2,142	2,126	1,656	1,451
2006	2,154	2,188	1,665	1,456
2007	2,145	2,180	1,634	1,491
2008	2,122	2,196	1,630	1,468
2009	2,147	2,157	1,547	1,442
2010	2,206	2,249	1,624	1,442
2011	2,193	2,248	1,630	1,455
2012	2,232	2,210	1,669	1,414
2013	2,251	2,358	1,636	1,410

Note: See Table 4.

TABLE 6

REAL WAGE BILL PER EMPLOYEE FOR SECTORAL AGREEMENT STAYERS, LEAVERS, AND JOINERS, 2000-2013, UNWEIGHTED DATA

(a) Establishments Observed for Three Consecutive Years			
	t-2	*t-1*	*t*
Sectoral agreement stayers	2,202	2,212	2,224
Orienting leavers	1,764	1,754	1,740
Non-orienting leavers	1,518	1,458	1,404
Orienting joiners	1,774	1,762	1,777
Non-orienting joiners	1,435	1,460	1,489
Orienting stayers	1,755	1,758	1,762
Non-orienting stayers	1,528	1,521	1,516

(a) Establishments Observed for Four Consecutive Years				
	t-3	*t-2*	*t-1*	*t*
Sectoral agreement stayers	2,218	2,230	2,242	2,249
Orienting leavers	1,841	1,816	1,830	1,794
Non-orienting leavers	1,533	1,597	1,522	1,442
Orienting joiners	1,748	1,749	1,721	1,738
Non-orienting joiners	1,373	1,371	1,373	1,422
Orienting stayers	1,777	1,781	1,782	1,785
Non-orienting stayers	1,549	1,538	1,536	1,532

Notes: In panel (a) the selected establishments were observed in the three consecutive years *t-2, t-1* and *t*. The reported values are the mean real wages per full-time equivalent in year 2000 Euros (see Table 4). To illustrate, the value reported in the first cell of panel (a) (viz. 2,202 Euro) is the *t-2* average over all sectoral agreement stayers observed consecutively in 2000, 2001 and 2002; 2001, 2002 and 2003; …; and 2011, 2012 and 2013 (or in all or some of these three-year periods). The same applies for panel (b), except that in this case we have sequences of four consecutive years.

TABLE 7
OBSERVED AND COUNTERFACTUAL ESTABLISHMENT WAGES FOR SECTORAL AGREEMENT LEAVERS AND JOINERS, 2000-2013

	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups)	*N*
(a) Establishments Observed for Three Consecutive Years					
Sectoral agreement stayers (control group)	2,224	---			34,747
Orienting leavers	1,740	1,781	-41***	88***	1,466
Non-orienting leavers	1,404	1,533	-129***		423
Orienting stayers (control group)	1,762	---			11,092
Orienting joiners	1,777	1,781	-4		1,359
				-69**	
Non-orienting stayers (control group)	1,516	---			14,276
Non-orienting joiners	1,489	1,424**	65**		549
(b) Establishments Observed for Four Consecutive Years					
Sectoral agreement stayers (control group)	2,249	---			25,121
Orienting leavers	1,794	1,832	-38**	131***	581
Non-orienting leavers	1,442	1,611	-169***		133
Orienting stayers (control group)	1,785	---			6,656
Orienting joiners	1,738	1,754	-16		354
				-72	
Non-orienting stayers (control group)	1,532	---			9,087
Non-orienting joiners	1,422	1,366	56		183

Notes: The establishment wage is defined as the real wage bill per full-time equivalent employee. w_t (w_t^*) denotes the observed (counterfactual) mean wage in *t* over all *j* units in the corresponding group. For example, the counterfactual wage of 1,781 Euros shown in the second column and second row of panel (a) gives the wage that an orienting leaver would obtain in *t* had that establishment stayed covered by a collective agreement *in t-2, t-1,* and *t* (rather than covered in *t-2* and not covered but oriented in *t-1* and *t).* The same procedure applies in respect of orienting joiners vis-à-vis orienting stayers and for non-orienting joiners vis-à-vis non-orienting stayers. Panel (b) has the same interpretation, except that in this case the selected establishments are observed for the four consecutive years *t-3, t-2, t-1,* and *t*.

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels, respectively. The results reported in the third column are derived from a mean comparison (one-tailed) test within a given group. Thus, for orienting leavers, for example, the null hypothesis is given by *difference* = mean (w_{jt}) – mean (w_{jt}^*) = 0, against the alternative *difference* < 0, where *j* indexes a member of the group of orienting leavers; for joiners the alternative hypothesis is given by *difference* > 0. The (one-tailed) test provided in

the fourth column compares orienting versus non-orienting leavers and then orienting versus non-orienting joiners. In the former, the null is given by *difference* (orienting leavers) – *difference* (non-orienting leavers) = 0 against the alternative of a negative difference; in the latter, the null is given by *difference* (orienting joiners) – *difference* (non-orienting joiners) = 0, against the alternative of a positive difference. The selected establishments have at least one employee. *N*, in the last column, denotes the sample size of the corresponding groups.

TABLE 8a

OBSERVED AND COUNTERFACTUAL ESTABLISHMENT WAGES FOR ESTABLISHMENTS WITH AT LEAST FIVE EMPLOYEES, 2000-2013

	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups)	*N*
Sectoral agreement stayers (control group)	2,282	---			32,484
Orienting leavers	1,888	1,919	-31**	78**	1,197
Non-orienting leavers	1,657	1,766	-109**		267
Orienting stayers (control group)	1,877	---			9,330
Orienting joiners	1,889	1,895	-6	-53*	1,116
Non-orienting stayers (control group)	1,748	---			10,024
Non-orienting joiners	1,606	1,559	47*		371

Notes: The selected establishments were observed for three consecutive years, *t-2, t-1,* and *t*. See notes to Table 7.

TABLE 8b

OBSERVED AND COUNTERFACTUAL ESTABLISHMENT WAGES FOR ESTABLISHMENTS WITH AT LEAST ONE EMPLOYEE IN MANUFACTURING AND SERVICES, 2000-2013

	Manufacturing					Services				
	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups)	*N*	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups)	*N*
Sectoral agreement stayers (control group)	2,249	---			12,241	2,210	---			22,506
Orienting leavers	1,741	1,783	-42**		579	1,739	1,780	-41**		887
				124**					74**	
Non-orienting leavers	1,399	1,565	-166**		119	1,405	1,520	-115***		304
Orienting stayers (control group)	1,804	---			4,765	1,715	---			6,237
Orienting joiners	1,626	1,646	-20		552	1,881	1,875	6		807
				-69*					-60	
Non-orienting stayers (control group)	1,506	---			4,502	1,521	---			9,774
Non-orienting joiners	1,504	1,455	49		171	1,482	1,410	72**		378

Notes: The selected establishments were observed for three consecutive years*, t-2, t-1,* and *t*, over 2000-2013. See notes to Table 7.

TABLE 8c

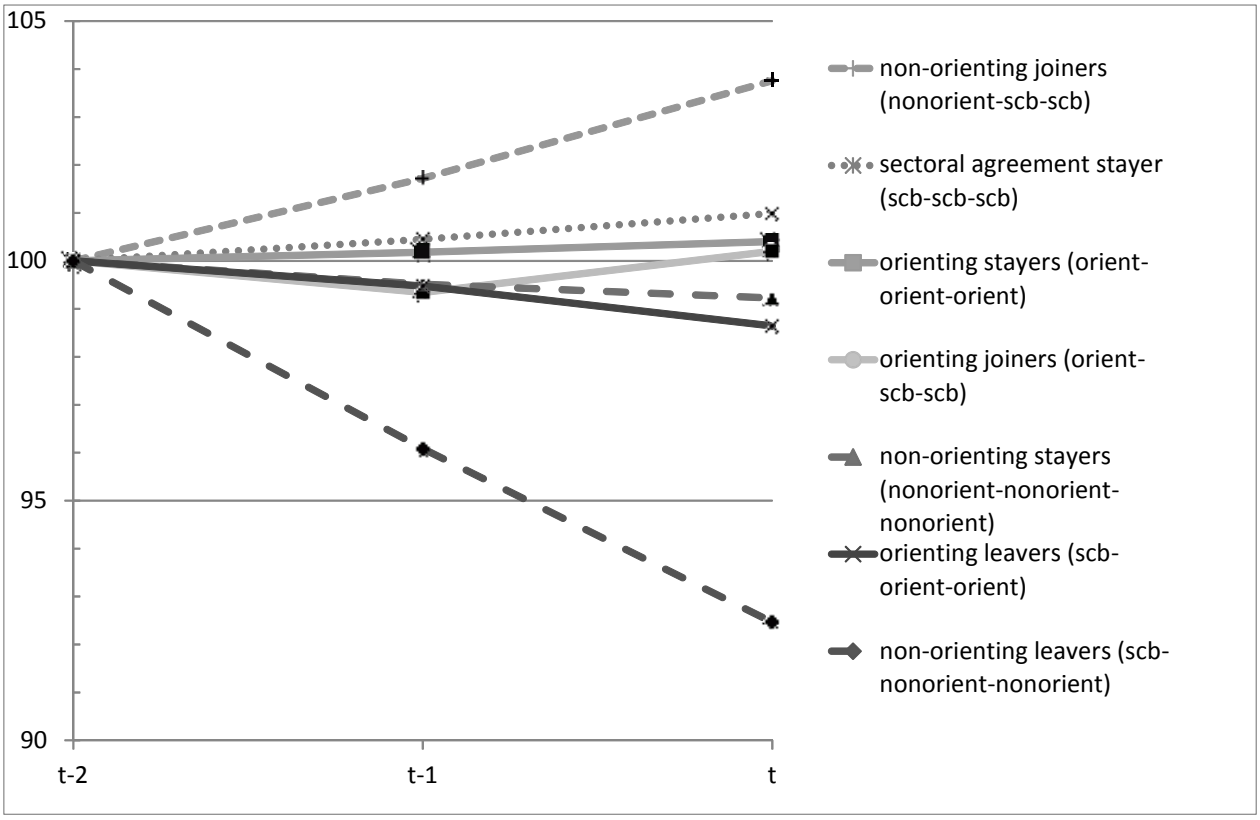
OBSERVED AND COUNTERFACTUAL ESTABLISHMENT WAGES FOR ESTABLISHMENTS WITH AT LEAST ONE EMPLOYEE, 2000-2006 AND 2007-2013

	2000-2006					2007-2013				
	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups))	*N*	w_t	w_t^*	Mean comparison (within groups)	Mean comparison (across groups)	*N*
Sectoral agreement stayers (control group)	2,252	---			15,692	2,192	---			13,260
Orienting leavers	1,801	1,802	-1	89**	658	1,683	1,764	-81***	126**	561
Non-orienting leavers	1,496	1,586	-90*		219	1,272	1,478	-206***		111
Orienting stayers (control group)	1,824	---			3,770	1,720	---			5,504
Orienting joiners	1,844	1,863	-19		687	1,688	1,674	14		447
				-83					-36	
Non-orienting stayers (control group)	1,571	---			6,835	1,472	---			6,835
Non-orienting joiners	1,547	1,483	64*		140	1,346	1,296	50		140

Notes: The selected establishments were observed for three consecutive years, *t-2, t-1,* and *t*. See notes to Table 7.

FIGURE 1

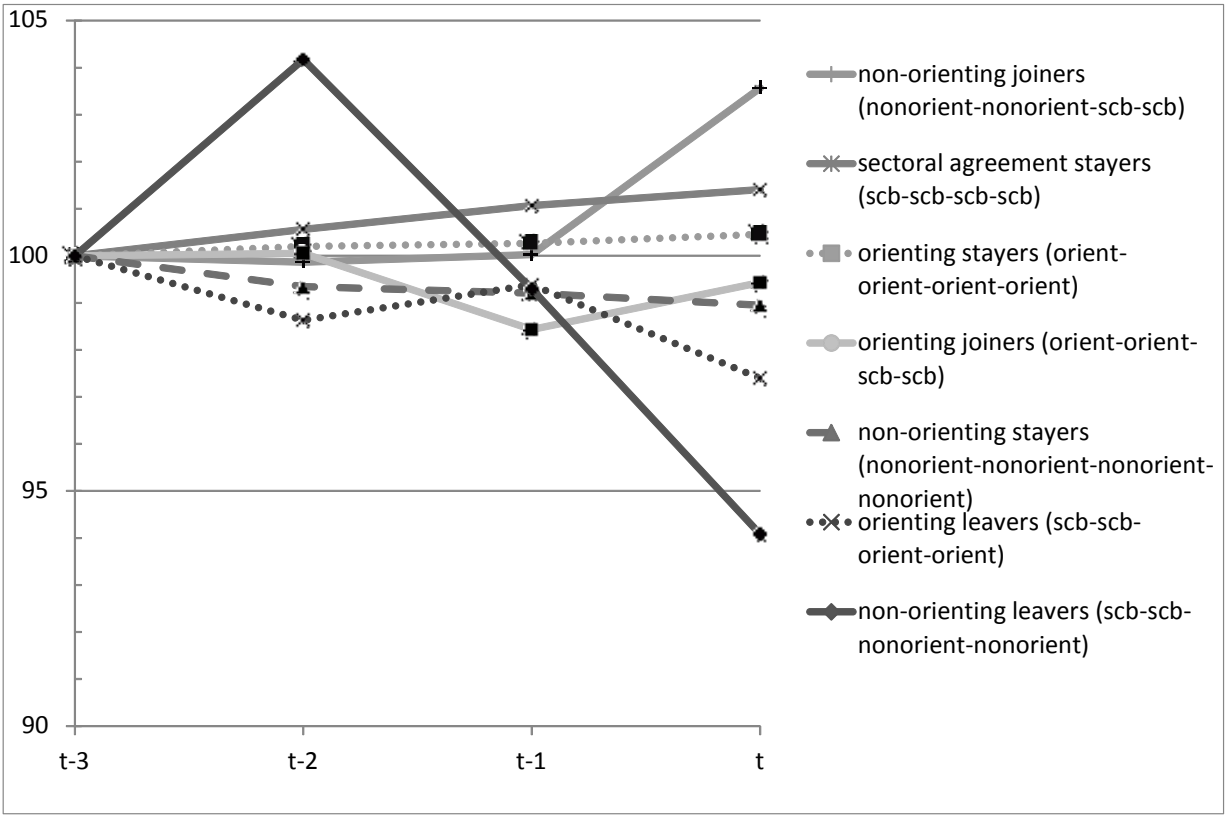
WAGE GROWTH PROFILE OF ESTABLISHMENTS COVERED/NOT COVERED BY A SECTORAL AGREEMENT VERSUS SECTORAL AGREEMENT LEAVERS AND JOINERS



Notes: We observe the selected establishment groups in the three consecutive years *t-2, t-1,* and *t*, and for each group we compute the wage growth between t-2 and t-1 and between t-1 and t, where t-1 is the switching year. The wage in each group is set at 100 in year *t-2* so that each line gives the group-specific wage growth over time, that is, one and two years after establishments in the group are first observed. The establishment wage is defined as the wage bill per full-time equivalent employee (see notes to Table 6). The sample period is 2000-2013.

FIGURE 2

WAGE GROWTH PROFILE OF ESTABLISHMENTS COVERED/NOT COVERED BY A SECTORAL AGREEMENT VERSUS SECTORAL AGREEMENT LEAVERS AND JOINERS



Notes: We observe the selected establishment groups in the four consecutive years *t-3, t-2, t-1*, and *t*, and for each group we compute the wage growth between *t-3* and *t-2*, between *t-2* and *t-1,* and between *t-1* and *t*, where *t-2* is the switching year. The wage in each group is set at 100 in year *t-3* so that each line gives the group-specific wage growth over time, that is, one, two, and three years after establishments in the group are first observed. The establishment wage is defined as the wage bill per full-time equivalent employee (see notes to Table 6).The sample period is 2000-2013.

APPENDIX

SAMPLE INDUSTRIES AND THEIR 2-DIGIT COMPONENTS, BEFORE AND AFTER THE SIC CHANGES OF 2009

Industry	2-digit industry classification	
	2000-2008	2009-2013
Manufacturing	Manufacture of food products Manufacture of textiles and clothing, tanning and dressing of leather Manufacture of paper products, printing, publishing Manufacture of wood products Manufacture of chemicals, coke, refined petroleum products and nuclear fuel Manufacture of rubber and plastic products Manufacture of other non-metallic mineral products Manufacture of basic metals Recycling Manufacture of fabricated metal products and structural metal products Manufacture of machinery and equipment Manufacture of motor vehicles, trailers and semi-trailers Manufacture of other transport equipment Manufacture of electrical equipment, office machinery and computers Manufacture of precision and optical equipment Manufacture of furniture, jewellery, musical instruments, sports goods, games and toys and other products	Manufacture of food products Manufacture of textiles and clothing, tanning and dressing of leather Manufacture of wood products paper, print products Manufacture of chemicals, coke, refined petroleum products and nuclear fuel Manufacture of rubber and plastic products Manufacture of other non-metallic mineral products Manufacture of basic metals Manufacture of fabricated metal products (not including machinery and equipment) and structural metal products Manufacture of electrical equipment, office machinery and computers Manufacture of precision and optical equipment Manufacture of machinery and equipment Manufacture of motor vehicles, trailers and semi-trailers Manufacture of furniture, jewellery, musical instruments, sports goods, games and toys and other products Reparation of machinery installation equipment
Construction	Building of complete constructions or parts Building installation and building completion	Building construction and civil engineering Building installation and building completion
Trade, Transport, and Finance	Sales, maintenance and repair of motor vehicles and motorcycles; retail service of automotive fuel Wholesale and commission trade Retail trade, repair of personal and household goods Transport Communication Central Banking Insurance and pension funding	Sales, maintenance and repair of motor vehicles Wholesale and commission trade Retail Trade, petrol stations Transport and Warehousing car parks, railway stations, additional carriage, postal-, courier-, express mail service Information, Communication publishing, film production, rental, distribution, broadcasting service, telecommunication in
Business Services/Industry Services	Computer and related activities Research and development Legal, accounting, book-keeping and auditing activities, advertising, market research Real estate activities	Real estate activities Legal and tax advice, accounting Administration, leadership of establishments, consulting Architecture and engineering offices, technical, physical, chemical support Research and development

	Renting and business activities	Marketing and market research, design, photography, translation Veterinary industry Renting and business activities Placement and temporary provision of labor Hawking, security agencies, landscaping, other economic services
Other Services	Hotel and restaurants Education Human help, veterinary and social work activities Sewage and refusal disposal, sanitation and similar activities Recreational, cultural and sporting activities Other services	Hotel Business and Gastronomy Financial and Insurance services Industrial services Human Health Recreational, cultural and sporting activities Other services (laundry/hairdressing)